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ABSTRACT

A study examined the influence of two different writing tasks on the ways in which students evaluate arguments on one controversial issue. Subjects, 20 first-year college students, evaluated 2 argumentative articles on the issue of drug legalization. Subjects rated the strength of the argument of each paragraph as they read. Ten of the subjects wrote short answers to a set of "critical thinking" questions, and the other 10 students wrote an essay in which they analyzed and evaluated the arguments in the articles. The subjects then re-read the articles, once again evaluating the strength of the argument in each paragraph. Students' comments made while evaluating the strength of the arguments were tape recorded and transcribed. Results indicated that the students: (1) did not say much about issues of logic and support in the arguments; (2) liked the use of some types of emotional appeals; (3) were very uncritical of the statistics used in the arguments; and (4) were not influenced in their use of evaluative criteria by the type of writing task (short answer or essay writing). (Two tables of data are included.) (RS)

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The Effect of Writing on Students' Argument-Evaluation Processes

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I. INTRODUCTION

As writing teachers, we often have students read, analyze, and evaluate the arguments of others in order to help them produce their own arguments. The study I'm going to talk about today looks at this practice in reverse. It seems to me that analyzing and evaluating the arguments of others is an important and a difficult task in itself, for many reasons. So I've been looking at the ways that students analyze and evaluate arguments, and at a variety of methods for influencing this process. This particular study looks specifically at the influence of two different writing tasks on the ways that students evaluate arguments on one controversial issue.

II. METHOD

Let me first tell you how I went about collecting the data for this study. I asked 20 first-year college students to evaluate two argumentative articles on the issue of drug lealization (see Table 1). One article argued that all illegal drugs should be legalized. The other article argued against legalization. (These articles were each 10 paragraphs long, and they were similar to what you might expect to find in a newspaper opinion column or in a popular magazine.) While reading, the students were asked to stop after each paragraph and rate the argumentative strength of each paragraph, using a 5-point likert scale, from very weak to very strong. They were also asked to say something about why they gave the paragraph the rating that they did. (Their comments were captured on tape and later transcribed.)

Table 1. Experimental Design

Participants = 20 First-year Students

Session	Question Condition (10 Ss)	Essay Condition (10 Ss)
Session 1	Evaluate articles	Evaluate articles
Session 2	Answer critical thinking questions	Write analytical essay
Session 3	Evaluate articles	Evaluate articles

In the second session, I asked 10 of the students to write short answers to a set of "critical thinking" questions, and I asked the other 10 students to write an essay in which they were asked to analyze and evaluate the arguments in the articles.

In the third session, all of the students were asked to read the articles again. Once again, while reading, they rated each paragraph and said something about why they gave it the rating that they did. The idea was to try to determine if either of the writing tasks had changed their evaluation processes.

The critical thinking questions asked the students to look at the ways in which the writers of the articles used four types of support for their claims: statistics, analogies, emotional language, and the citing of authorities, or "expert" opinions. For instance, the questions pointed out specific places in each article where statistics were used, and asked, "How were these numbers tabulated? Were they arrived at in a valid scientific manner? How do you know?" They also asked, "Does the use of numbers in these paragraphs strengthen, weaken, or have no effect on the argument, and why?" Other questions pointed to places where expert testimony was cited, and asked if the

experts were qualified or unqualified, biased or unbiased. The idea was that the questions would get the students to re-examine the particular arguments, and maybe prompt the students to find weaknesses that they didn't notice the first time through, or get them to think more about the different kinds of support that were being used in the articles.

The writing prompt given to the other 10 students asked them to pick out 2 or 3 arguments that they felt were strong from each article and 2 or 3 arguments that they felt were weak from each article, and write a short paper defending their choices by explaining exactly what was weak or strong in each argument. I expected that, while answering the questions might prompt students to notice more argumentative faults in the second reading, writing the essay would help students elaborate on their evaluations--that is, have more to say about why they were rating the arguments as they were.

III. ANALYSIS -- Criteria for Evaluation

As I stated before, each student was asked, after reading each paragraph, to say something about why they gave the paragraph the rating that they did. I classified the comments that they made, using a coding scheme that I derived inductively by going through the transcripts. The purpose of this coding system was to try to determine what criteria the students were using for evaluating the arguments.

The coding categories included:

Criticisms of Logic and Support

Comments were placed into this category if they pointed to criteria that were internal to the argument; that is, if they mentioned criteria that any argument should fit, regardless of content.

This category included--

•Comments about the presence or absence of "support" or "evidence."

•Comments saying that certain statements in the article were contradictory with other statements in the same article.

And finally, any comments questioning the rationality of the argument or in which the words "validity," "soundness," or "logic" were explicitly mentioned.

Elaborations

The second category is **Elaborations**. An elaboration was any comment that went beyond the text to offer additional information or a rival hypothesis that the reader was pulling from his or her own knowledge, beliefs, or past experience.

For instance, the pro-legalization article was based largely on the assumption that most of the street crime taking place in America today is the result of the illegal drug trade, and claimed that legalizing drugs would lead to a decrease in such crime by making drugs cheap and plentiful. But one reader argued that it was the effect of the drugs, not the cost, that caused addicts to commit violent crime. Therefore, he argued, legalizing drugs would actually lead to an *increase* in such crimes.

Several of the readers offered their own proposals for solving the problems related to drug abuse:

"I am a Criminal Justice major and I feel that if we were to clean up the justice system a little bit then there wouldn't be such a problem."

"Most drug addiction is either the result or the cause of homelessness, and I think if they solve that problem first, then maybe they can start talking about what to do about the drug problem."

These rival proposals were also placed in the **Elaborations** category.

Low-level Strategies

The third category are low-level responses. There were three types of low-level comments:

Agreement--Stating that a particular argument is strong "because I agree with what they're saying."

Disagreement--Stating that a particular argument is weak because "I don't agree with what they're saying" or "I don't think that's true."

Summary--Stating that a particular argument is strong or weak, and then just summarizing or paraphrasing the argument. For instance, one student read a paragraph from the anti-legalization article that claimed that, if drugs were legalized, the number of cocaine addicts would rise to as much as 10 million people. The student then said this about the paragraph:

"This paragraph strengthens the argument a little because it's saying that if drugs were legalized, . . . a lot more people are going to use them, a lot more people are going to become addicted."

Audience

The fourth category is **Audience**. Comments were placed in this category if they mentioned how other readers might react to the argument being offered. For instance, one paragraph from the anti-legalization essay focused on the monetary cost of drugs to society. This paragraph argued that legalizing drugs would cost the taxpayers billions of dollars through increased costs in law enforcement, health services, and reduced productivity. One student responded by saying:

This is a very good paragraph, strengthens it a lot, I feel. Whenever you pull at somebody's purse strings, reach into their wallet, it makes them stand up and notice.

Type of Argument

This last category is sort of a catch-all. A comment was placed into this category if it mentioned any specific type of support that was being used in the article. Most of the comments in this category mentioned one of the following four types of support:

•Comparison or analogy: For instance, both articles compared our current situation with illegal drugs with the prohibition era of the twenties. Some students said that the comparison was

simplistic or that alcohol and drugs were two different things, and you just couldn't compare them.

•Using examples: The anti-legalization article included two specific examples or anecdotes. The first was the story of a sixteen-year old girl who was addicted to drugs and about how drugs "ruined her life". The second told about the time the author was held up by a drug addict with a butcher knife. In general, the students liked the first example, but thought the one that related the writer's experience just showed the writer's bias toward the issue.

•Expert testimony: The articles often cited statistics and predictions from experts or from private institutes, such as the head of the National Institute on Drug Abuse, and something called the Cato Institute. Students usually said that citing the expert strengthened the argument. Sometimes, though, the students questioned the value of the expert testimony, or asked, "What the heck is the Cato Institute, anyway?"

•Statistics: The students also had varying reactions to the way the writers of the articles used statistics. Sometimes students said that statistics strengthened the argument because statistics are "factual." Other times, they said the statistics weakened the article because they were too confusing or too "dry."

IV. RESULTS

First I wanted to look at how the students as a whole were using the criteria, to see which ones they seemed to be using the most. The numbers you see here are proportions. For each category, I divided the total number of times the students made a comment in that category over the total number of comments that the students made. So, for instance, out of all the comments that the 20 students made in the two sessions, 15.3% were comments on the logic and support in the articles, 28.3% were elaborations, and so on (see Table 2).

Table 2. Average Proportion of Each Criterion Mentioned

Criterion	Proportion of All Comments
Logic	0.153
Elaborations	0.283
Low-level	0.299
Audience	0.154
Type	0.124

The largest category was the group of low-level comments, followed closely by elaborations. As I pointed out, only about 15% of the comments were focused on issues of logic and support in the articles. So it seems that, more than anything else, the students evaluated the arguments in terms of whether they agreed with the assertions or whether they could come up with alternative proposals, explanations, or conclusions.

Coming up with these alternatives is not necessarily a strong or a weak strategy--it depends on the quality of the alternative explanations that the student comes up with, and on how critically their prior beliefs have been formed. Looking through the transcripts, I saw some alternative explanations that were quite insightful. Others, though, were in the neighborhood of, "I don't believe that many people take drugs, because I don't see it happening in my neighborhood."

So I would say two things about this. First, it seems to me that the students should be paying more attention to matters of logic and support. Second, we need a system--some normative model or set of criteria--for evaluating what I'm calling their elaborations. This

is a highly contextualized matter, and one that Critical Thinking and Argumentation pedagogy haven't really gotten a handle on yet.

b) Effect of the two writing tasks on students' criteria for evaluation.

Next, I wanted to know if either of the writing tasks influenced the way that the students used these criteria. The short answer is that they didn't. There were no statistically significant differences between the two writing conditions. I had expected that the essay-writing students would make more elaborations in the second session, since they were asked in writing the essay to elaborate on their evaluations. I also expected that the question-answering students would make more statements about the logic in the articles, and would certainly make more comments mentioning specific types of argumentative support. All of these things happened, but the numbers were very small--2%, 1%, 3.5%--too small to be either statistically or practically significant.

V. Conclusion

To sum up the results:

1. The students did not say much about issues of logic and support in the arguments. Instead, they spent much of their time comparing the assertions in the arguments against their own knowledge and beliefs.

2. The students liked the use of some types of emotional appeals in the articles. They weren't uncritical of emotional appeals--even in the article they agreed with, they distinguished between good and bad emotional appeals. But they didn't discount the use of such appeals altogether.

3. The students were very uncritical of the statistics in the arguments. Even when they felt that the experts being cited were biased, they seemed to assume that this bias did not taint the statistics offered by these experts. They saw statistics as a recitation of the facts of the matter. Their only consistent complaint was when they thought the statistics were too complicated or just boring.

Implications

1. Students need to learn more about where statistics come from, and how they're made. I've seen them discussed in critical thinking and argumentation textbooks, but we need some research to tell us how well these efforts are working, and how we can make them more effective.

2. Much of the work in evaluating arguments falls outside the systematic search for logical fallacies. We need a system or a theory for evaluating the elaborations in which arguments are compared to the reader's prior knowledge and beliefs and to other assertions that the reader has been exposed to on the same topic. Once we begin to separate useful elaborations from faulty ones, we then need to develop ways for improving the types of elaborations that students make.